

Exhibit 19

The Future of Bank Financial Performance Management Applying Platform and API Economy Technologies in Risk Management

Steven D. Cohen and Gerald W. Hayden, IBM Global Banking and Financial Markets Center of Competency

Introduction

There are a number of Strategies and Regulatory mandates in the Global Financial Services Industry that is having profound effects on how we manage our technology investments. At the highest level, the requirement is that balance sheet management moves to prediction. Prediction itself however, is still not enough, because in Banking, economic value only occurs when the mitigating financial transactions occur. This means everything must become actionable and as every Customer transaction occurs. We must know and take action on any important implications to subsequent transactions at the Trading book, Treasury Book and Banking Book levels. Intraday Liquidity (BCPS 249) pretty much made this decision for the Banking Industry.

These concepts are also being mandated by CECL/IFRS 9, and also an important finding of the Banking Industry in Stress Testing. Further still, a similar conclusion was reached in a comprehensive one year study completed by 100 academics after the April 2010 Flash Crash. In other words, balance sheet management success is a direct “summed total” of customer balance sheet success and must occur at or as close as possible to the speed of Markets.

Integration of Risk Metrics, their Workflows and Applied Analytics

The Operational Risk Institute (ORI) is a leading body on guidance on Risk Management Indicators. Regulators, Central Banks and Bank Board of Directors have learned a valuable lesson in implementing Regulatory Reporting Standards. The ORI definition of Risk metrics is that it is anything that can be used to measure;

1. The amount of exposure of a Given Risk
2. The Effectiveness of Controls on Risk Management, such as knowing what Employee owns a specific Bank Customer risk mitigation item and its resolution timing.
3. The performance and status of Risk Mitigation on an ongoing basis.

Although Banks have met the various Regulatory Reporting requirements at a “Bank Grand Totals” level, Risk Management Metrics have been vertically spread out across Business Units, Product Lines, and Risk Types (e.g. Treasury Management Risk vs. Trading Book Risk, etc). This has reduced the ability of more accurate predictions on risk and the ability to be “actionable” at a Bank customer level. An example of this deviation from ORI Risk Standards is knowing Net Interest Income Risk at the Balance Sheet Level in ALM to meet Regulatory Standards, is very different than knowing which Customers may be impacted on Rate increases on Prime Rate based loans. Two separate workflows and operational processes that in fact must be connected in overall Risk Management.

Customer Centricity, Prediction and the Speed of Markets Mandate

When we take into account, Industry Strategies such as Omni Channel, Financial Marketplaces, Digitization (1) and FinTech, they all share an important common denominator, which is maintaining real time Customer financial performance and relevance. From a Workflow perspective, this not only means

maintaining real time awareness of Customer financial opportunities and risks, it means being able to predict it across all Product Lines, and in some cases across competitively held products, which can be largely assessed through 3rd party data. The EUDP II Account Information Provider Rules (AIP) adds fuel to this discussion by forcing this issue, where any Third Party provider can possibly relegate Banks to a lowest cost Product value proposition. Think Amazon Bank.

In order to achieve “True Financial” Customer Centricity, separate and serial vertical business unit workflows must become integrated and simultaneous. The business requirement is that Technology Architectures must enable the Workflows Architectures to be “customer level actionable”, not only on financial performance, but it must include the ability to meet all the Industry Strategies and Regulatory Compliance requirements, which carry other economic benefits themselves. This requires optimized Architectures that largely do not exist in Banking today, or come with a heavy cost burden (referred to as Technical Debt).

(1) Note: Digitization in this context means the active pursuit of new channels, new Product/Services and new Revenue Streams.

Governance Guides everything else

Maintaining real time financial relevance, or Customer Centricity, can be described as the ability to connect the right question, to the right answer, using the right media, with the right resource at the right (real) time. This is referred to as the 5 R's.

The problem is, and as we will discuss later, is that Bank Workflow and Technology Architectures are largely Vertical Product and Business Unit centric and Customer financial performance and real time relevance is a Horizontal requirement. As an example, 90%+ of small business failure is not because of profitability, it's because of cash flow issues, and many of these cash flow issues are detectable and predictable real time.

ITIL defines Governance as *“the process IT uses to deliver value to the business”*. Since Technology Vendors are an extension of delivering IT Value, there must be “Horizontal” consistency in the Architectures between Banks, their Business and Technology Partners. The economics are dependent on the new business models being used, the work flow architectures which support them, and technology architectures that enable them. This is where Platform and API Technologies come into play, which evolve Vertical Project ROI based Statements of Work to Strategic Roadmaps. This is where all Bank Business units and Technology Partners, share a Platform Architecture that provides the foundation for an API Eco-system. It also enables the abilities to connect one platform to another, or a Network of Applications.

From a Governance change perspective, the largest determining factor is how much Leadership is organized across (horizontally) BU's and the best persons to help lead this tends to be in the CFO and CIO offices, as they understand the Technologies and the Investments. The value of Horizontal Governance centralizes Authority and where accountability with measurable metrics is de-centralized and shared. Learning the Horizontal Governance Framework should be a priority because it will be extremely difficult to overcome inadequate Governance. Some of the Horizontal Governance requirements covers, Financial Performance, Architecture, Product/Marketing, Channels and Risk functions, whose combined effort is focused on Customer Financial Performance. It is important to note, that Horizontal Governance does NOT mean reorganization! It means defining requirements and building governance driven by shared metrics across things like Products, Architectures, Financial

Models, Customer experience, etc. As competition matches the requirements, competitive differentiation reverts to mere operational excellence and new requirements and Governance must be adopted. In Digitization, who reports to whom matter less.

Balance Sheet Management and Applied Analytics

Many studies have shown that 80%-90% of Bank Profits originate from 10%-20% of the Customer base. That translates to 80%-90% of a Bank's Mission is Customer Risk management and coordinating utilization of hindsight (what happened in the past), insight (what is happening now), foresight (what will happen) and MOST IMPORTANTLY, Applied Analytics. Applied Analytics is a fancy word for the ability to take action. Board of Directors learned this the hard way in Capital Adequacy Regulation, that it is not enough to know the "Regulatory Numbers", we must also know what Customers are involved, what Bank Employee owns resolution, and what is the current status of financial mitigation. Keeping in mind, prediction (or foresight) is not the objective, beating the prediction and continuous tracking (hindsight) of prediction against actual results are the objectives. Shared Metrics play a large role here. As an example, the Treasury function may own Asset and Liability financial performance metrics, but Bank Channels must have operational metrics that require mitigation of "predicted" Customer liquidity issues before they occur and be time sensitive based. This would facilitate the Treasury functions ability to shift from being reactionary to proactive, and drive financial performance for the both the Customer and therefore the Bank, and therefore a financially based, sustainable value chain.

If nothing else had changed, Regulatory requirements of Intra-day Liquidity and "Customer Expected Credit Loss" (CECL/IFRS9) not only forced the Real Time Balance sheet mandate, it created the need for Real Time Balance Sheet management at a Customer Level, simply because this is the level of action of the mitigating financial transaction.

The largest problem in balance sheet management is Applied Analytics, and that means all Bank Channels must have integrated and simultaneous workflows and technology architectures. In steps Platforms and the API Economy.

Sins of the Past

In order to understand where we need to go, it helps to know where we came from. For decades Banks built their technologies based on "Vertical" Business Units, Products and Risk functions. The Horizontal Customer Centricity mandate and supporting Governance models don't largely exist today. In an informal IBM survey of Global CIO's, shows that the extra Technology required to link these Vertically designed technologies account for approximately 25% added application development and maintenance cost structure. The problem has gotten large enough, it even has a name called "Technical Debt". Platform technologies allow us to modernize legacy architectures and to do so very quickly, while removing technical debt over time, and allowing large legacy changes to occur at a pace that makes resource and capital planning sense. The alternative is to continue to take on more Technical Debt.

A good example of this is having multiple CRM's where the mandate is not only understanding the products a small business customer has, but being able to know the account relationships between the small business owners personal accounts and the ultimate beneficiaries. This is not only a KYC/AML requirement, it can be used to gain foresight on things such as "willful default" (e.g. affects on Liquidity, Net Interest Income, Loan Loss, etc).

IT Investment Strategy going Forward

This shift from Vertical to Horizontal Funding, Governance, Workflow and Technology Architectures is what Platform Architectures and the API Economy are designed to address. Platform Technology is about “building ecosystem architectures of Value propositions and Data” as well as being “the Network of Applications”. Three examples of successful Platforms are Amazon, Windows and iPhone. All of these allow value propositions and ecosystems to connect off a common Platform.

Taking all of the above into account, a simple workflow example of building Platform eco-systems and the effects on workflow and technical architectures follows;

- A Small Business customer just cancelled their Property Insurance (data from a third party data provider gets pushed to the Bank through an API real time, as Vendor and Bank Platforms communicate)
- The Commercial Lender of the Bank who owns the Mortgage gets notified real time via eMail and the situation is tracked until resolution is accomplished.
- The Small Business Customer is immediately sent an eMail showing a Bank pre-negotiated best Property Insurance price and only needs to click on the eMail URL to apply. All of this happens real time and is tracked until resolved.

What we have accomplished in the way of Industry Strategy execution and integrated and simultaneous workflows;

- We have reduced off-book Customer and Bank Risk (e.g. reduced CECL/IFRS 9 ALLL Reserve requirements).
- We have improved Asset & Liability, Net Interest Income and Liquidity Management. We can also report (to the Board of Directors) with precision, on not only what the risks are, but be able to pin point what needs to be acted on and by whom (shared Bank Metrics between Treasury, Commercial Lending and Product Risk units as well as real time integrated workflows).
- We have implemented real time integrated Customer (Centricity) and Bank Balance Sheet Management.
- We have addressed aspects of Omni Channel and FinTech Strategy.
- We have implemented parts of Financial Marketplace Strategy.
- We have integrated four separate and serial workflows into one integrated real-time workflow (reducing Human Capital Costs to compete with FinTech economics).

Platforms are about moving from Vertically based ROI Projects to strategic Horizontal Architectural roadmaps. This horizontal approach not only allows quick Legacy Architecture modernization, it enables the API Economy, where new requirements can be implemented in days and weeks, instead on many months and sometimes years. Perhaps, best of all, Banks become “Regulatory Ready” for the next wave of Compliance. Perhaps best of all, the implications to the current production environment is minimal or practically not at all.

Platforms also provide another profound capability in that, IT Value shifts from Cost/TCO to actually being able to;

- Calculate and monitor the ROI of technology investments by being able to measure the financial impacts of API's and Operational Metrics.
- Allow the management of human capital cost structure shifts, which is mandatory to compete against FinTech economics.
- Define failure points in taking actions by Channels (performance in financial transaction mitigation).
- Actually measure Banks performance in achieving Competitive differentiation at a Channel Employee level, as Customer value shifts from Transactions to Interactions.
- Predict the next Statement of Work requirements of the business based on financial and operational metrics performance (and the next generation of SLA's).

Approximately 25% of Chief Data Officer's compensation plans are now being measured by financial performance of the investments. Two extraordinary outcomes can happen in the API Economy. The first is that CDO's can now actually measure the impacts to their Data Strategy with precision and actually articulate what aspect of share price factors have been enhanced. Secondly, CDO's can now actually predict when the next business SOW is required, before the business itself even knows.

Summary and Benchmarking

Whether we are talking about Regulatory requirements such as CECL/IFRS 9, Intraday Liquidity, Capital Adequacy, or Industry strategies such as Omni Channel, Financial Marketplaces, Digital or FinTech, they all have a common need and therefore a common architecture that must support foresight and be actionable. At the same time, we must be able to modernize our legacy technologies quickly, by not touching the current production environment. Platforms and the API Economy can play an important role in helping to accomplish all of this.

*Steven D. Cohen & Gerald W. Hayden,
IBM Global Banking and Financial Markets Center of Competency
November 2017, New York, New York
gwhayden@us.ibm.com (m) [REDACTED]*